

Integrated Solar Energy Roofing Construction Panel

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ABSTRACT

A solar assembly comprising two components: a multi-functional solar collecting apparatus and a mounting embedment integrated with building construction material. The mounting embedment component is affixed to a building frame structure using standard construction techniques and receives the multi-functional solar collecting apparatus that is secured with fasteners.

The multi-functional solar collecting apparatus converts solar energy to electrical energy using a photovoltaic grid mounted on a copper plate that provides even temperature dispersion across the plate and acts as a thermal radiator when the apparatus is used as a radiant cooler; and a plurality of interconnected heat transfer tubes located within the apparatus enclosure disposed on the plane below the copper plate but conductively coupled to the copper plate for converting the solar energy to thermal energy in a fluid disposed within the heat transfer tubes.